

HIGH CONSERVATION VALUE AREA (HCVA) AND ECOLOGICAL REFERENCE AREA (ERA)**MANAGEMENT AND MONITORING FORMS PACKET***Portions of this information are exempt from Michigan's Freedom of Information Act, 1976 PA 442, MCL 15.243***BACKGROUND AND INSTRUCTIONS**

Prior to using this packet material and forms please refer to Work Instruction 1.4 Biodiversity Management on State Forestlands and the Conservation Area Management Guidelines available on line at:

http://www.michigan.gov/dnr/0,1607,7-153-30301_33360-144865--,00.html.

Identified HCVAs and ERAs will be managed to conserve, protect, maintain, and/or enhance their defined conservation objectives or values. The management methods used will vary depending on the objective and type of designation. On DNR-managed lands, Ecological Reference Areas may be protected through a variety of mechanisms (refer to Conservation Area Management Guidance). Management activities or prescriptions in Ecological Reference Areas are highly restricted to those that maintain or enhance the defined attributes and values and protect the immediate natural resource values or human health and safety.

This packet is for each High Conservation Value Area (HCVA) without an existing management plan and all Legally Dedicated State Natural Areas, Ecological Reference Areas (ERA), Critical Dunes and Coastal Environmental Areas on state forest land. Its purpose is to: 1.) document baseline information on each area and its conservation values, threats, management goals and objectives, and 2.) to track changes in threats, when management activities are carried out, monitor if they are effective, and capture needed changes in management determined not to be effective.

Keep the original copies of these forms in the Compartment/Stand File within each FMU and send copies to respective DEQ and DNR program managers and the DNR, FMFM Forest Resource Management Section, Monitoring Specialist.

SUMMARY: LOCATION MAP, MANAGEMENT RECOMMENDATIONS**PART I: HCVA BASELINE INFORMATION, GOALS AND OBJECTIVES**

☒ COMPLETE FOR EACH HCVA WITHOUT AN EXISTING MANAGEMENT PLAN

☒ PART I TO ACCOMPANY PART II

SECTION 1: SITE INFORMATION

- A. HCVA TYPE
- B. SITE, CONTACT AND ADMINISTRATIVE INFORMATION
- C. OWNERSHIP INFORMATION
- D. CONSERVATION PARTNERS
- E. OTHER DOCUMENTS RELATED TO THIS HCVA

SECTION 2: CONSERVATION VALUES (TARGETS)

- A. BIODIVERSITY VALUES
- B. SOCIAL/ECONOMIC VALUES
- C. INFRASTRUCTURE/FACILITIES VALUES

SECTION 3: CURRENT CONDITIONS (THREATS)

- A. VALUE OR TARGET VIABILITY (POOR, FAIR, GOOD, VERY GOOD)
- B. CURRENT PRIMARY THREATS

SECTION 4: MANAGEMENT GOALS AND OBJECTIVES**PART II: HCVA MONITORING****SECTION 5: COMPLIANCE MONITORING (WERE TASKS COMPLETED?)****SECTION 6: EFFECTIVENESS MONITORING AND RECOMMENDATIONS (HOW WELL DID MANAGEMENT WORK OR WERE OBJECTIVES ACHIEVED? WHAT ARE NEXT THE STEPS?)****SECTION 7: THREATS MONITORING FIELD FORM – STAND ALONE FORM (WHAT IS THE STATUS OF VALUES OR TARGETS?)**

☐ MAY BE COMPLETED BY ANYONE FOR ANY HCVA

☐ OR PART OF MONITORING PACKET TO ACCOMPANY PART I AND PARTS II, SECTIONS 6, 7 AND PART III.

Helpful References:

Marqoluis, R. and N. Salafsky. 1998. Measures of Success. Island Press, Washington, DC. 362 pp.

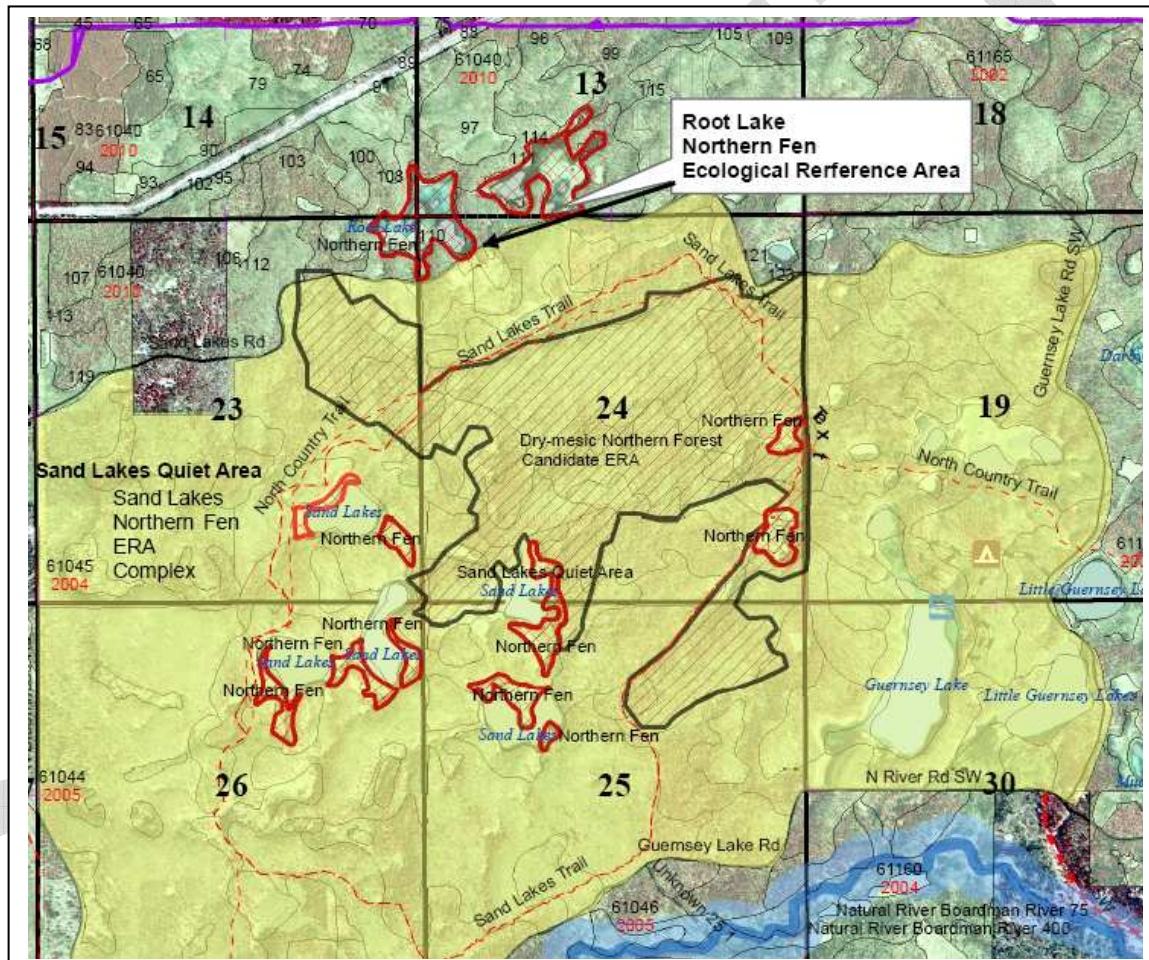
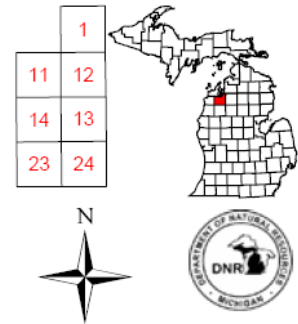
The Nature Conservancy. 2005. CAP (Conservation Action Planning) Toolkit - version 08-23-05.

See 2007 overview at <http://sites-conserveonline.org/dcs/projects/art10152.html> and the workbook at http://www.conserveonline.org/2003/07/s/ConPrjMgmt_v4

SUMMARY

**Root Lake Northern Fen
Ecological Reference Area**
Traverse City Forest Management Unit
Grand Traverse County, MI
Compartment 40
T27N, R09W,
Sections SESE 13, S1/SW 14,
NENE 23, NWNW 24
Acres = 47

Root Lake Northern Fen
Photo by Joshua G. Cohen



RECOMMENDED MANAGEMENT GOALS AND ACTIVITIES (REPEATED FROM SECTION 4)

GOAL 1: MAINTAIN NORTHERN FEN COMMUNITY THROUGH ALLOWING NATURAL PROCESSES TO OCCUR WITHIN FEN AND ADJACENT UPLAND BUFFERS

OBJECTIVE 1: DEVELOP WILDFIRE RESPONSE PLAN TO ALLOW FIRE TO BURN WHERE FEASIBLE, USE MINIMUM IMPACT SUPPRESSION TECHNIQUES (MIST).

OBJECTIVE 2: WORK WITH SPECIALISTS AND VOLUNTEERS TO DEVELOP A CONTROL PLAN FOR INVASIVE SPECIES.

OBJECTIVE 3: CONTROL ILLEGAL ATV USE AND RESTORE DAMAGE TO WETLAND WHERE IDENTIFIED.

OBJECTIVE 4: DEVELOP AN ACCESS PLAN TO MINIMIZE IMPACTS TO THE SHORELINE AND THE FEN.

OBJECTIVE 5: MAINTAIN FORESTED BUFFERS.

GOAL 2: REVIEW THE ROOT LAKE FEN WITHIN THE BIODIVERSITY PLANNING PROCESS AS IT NESTS WITHIN A LARGER LANDSCAPE COMPLEX (SAND LAKES NORTHERN MESIC FOREST LANDSCAPE UNIT) AND AS IT RELATES TO THE TWO ERA'S TO THE SOUTH IDENTIFIED IN THE SAND LAKES QUIET AREA.

PART I: HCVA BASELINE INFORMATION , GOALS AND OBJECTIVES**SECTION 1: SITE INFORMATION****A: HCVA TYPE – CHECK ALL THAT APPLY**

- ☐ Critical Dune as defined by DEQ
☐ Legally Dedicated State Natural Area
☒ Ecological Reference Area: **Roots Lake Northern Fen**
☐ Endangered Species Management Area
☐ Kirtland Warbler
☐ Piping Plover
☐ Other:

- ☐ Environmental Area as defined by DEQ
☒ State Natural or Scenic River: **Boardman River 1.5 miles to the South**
☒ Quiet Area: **Sand Lakes Quiet Area adjacent**
☐ Other:

SPECIAL CONSERVATION AREA - LIST OTHER CATEGORIES BELOW**SCA – Compartment 45 Stand Condition 8 Sand Lakes Quiet Area****Possible Biodiversity Stewardship Area (BSA) called the Sands Lake Northern Mesic Forest Landscape Unit****B: SITE, CONTACT AND ADMINISTRATIVE INFORMATION**Site Name: **Root Lake Northern Fen**

Other Names:

Report Date
Nov. 20, 2008Forest Mgt Unit
Traverse City Forest Management UnitCompartment: **40 2010 YOE**
Stand Number(s): **110, 111**

- ☒ Map Attached
☐ Shape File in OI/IFMAP GDSE

County(ies):
Grand TraverseTownship(s) Range(s) Section(s) ¼ Sec. Optional if mapped
T27N, R09W, Sections SESE 13, S1/SW 14, NENE 23, NWNW 24

Name of individual completing this form (first and last)

☒ Check if DNR Employee

Kim Herman, Monitoring Specialist, Forest, Mineral, Fire Management Division (FMFMD), Escanaba
Patrick Ruppen, Forester, FMFMD, Traverse City (TC)
Richard Earle, Wildlife Biologist, Wildlife Division (TC)
Todd Kalish, Fisheries Supervisor, Fisheries Division, Cadillac

Telephone

(906) 786-2351 ext 132
(231) 922-5280 ext 6843
(231) 922-5280 ext 6830
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Email Address

hermank@michigan.gov
ruppenp@michigan.gov
earler@michigan.gov
kalisht@michigan.gov

Additional contact information

Name of individual providing information (first and last), if applicable

David Lammien, Traverse City FMU Manager, FMFM
Tom Haxby, Inventory and Planning Specialist

Telephone

(231) 922-5280 ext 6840
(231) 775-9727 ext 6042

Email Address

lemmiend@michigan.gov
haxbyt@michigan.gov

Name of DNR/DEQ Program Contact if Applicable

Telephone

Email Address

☒ Volunteer (s): **For NC Trail in the Sand Lakes Quite Area**

Number of Volunteers:

Name of Group: **Grand Traverse Hiking Club Chapter of North Country Trail Association**

Contact Name: **John Heiam, President**

Telephone

(231) 938-9655

Email Address

johnheiam@charter.net☒ Volunteer(s) **For Shore to Shore Horse Trail in the Sand Lakes Quite Area**

Number of Volunteers:

Name of Group: **MI Trail Riders Association, Inc**Contact Name: **5806 E. State Rd., Hale, MI 48739**

Telephone

(989) 473-3205

Email Address

C: OWNERSHIP INFORMATION - CHECK ALL THAT APPLY AND INCLUDE NAME OF THE UNIT:☒ State Forest Land: **Traverse City Management Unit**☐ State Park/Recreation Area:☐ State Game Area:☐ Other or Private Land (describe):**D: CONSERVATION PARTNERS – FILL IN ALL KNOWN PARTNERS**

Name of Organization: **The Nature Conservancy**
 Contact Name: **Christine (Tina) Hall, Conservation Director**
 Email Address: **chall@tnc.org**
 Telephone **(906) 225-0399 ext 12**

Name of Organization **Michigan Natural Areas Council**
 Contact Name: **Phyllis Higman**
 Email Address: **mnac@cyberspace.org**
 Telephone **(517) 373-6983**

Name of Organization:
 Contact Name:
 Email Address:
 Telephone:

Name of Organization:
 Contact Name:
 Email Address:
 Telephone

E: OTHER DOCUMENTS RELATED TO THIS HCVA – CITATION AND LOCATION WHERE STORED

- Cohen, J. G., and M. A. Kost. 2008. Natural community abstract for northern fen. Michigan Natural Features Inventory, Lansing, MI. 18 pp. http://web4.msue.msu.edu/mnfi/abstracts/ecology/Northern_Fen.pdf
- Cohen, J.G., B.S. Slaughter, and M.A. Kost. 2008. Site Summary for Root Lake Northern Fen in Natural Community Surveys of Potential Ecological Reference Areas on State Forest Lands. Michigan Natural Features Inventory, Report Number 2008-04, Lansing, MI. p 161 of 272 pp.
- Kost, M.A., D.A. Albert, J.G. Cohen, B.S. Slaughter, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. Natural Communities of Michigan: Classification and Description. Michigan Natural Features Inventory, Report No. 2007-21, Lansing, MI. [Northern Fen](#)
- Michigan Department of Natural Resources, Forest Management Division. January 1983. Management Plan - Sand Lakes Quiet Area. Lansing, MI. 26 p. (One copy located in Traverse City FMU Office)

SECTION 2: CONSERVATION VALUES/TARGETS - CHECK ALL THAT APPLY**A: BIODIVERSITY VALUES**

There are a number of ways to describe biodiversity values - check all that apply.

1. **Natural Communities** – Based on Michigan Natural Features Inventory Community Classification.

GO to: http://web4.msue.msu.edu/mnfi/data/MNFI_Natural_Communities.pdf; <http://web4.msue.msu.edu/mnfi/pub/abstracts.cfm>

Quality Rank comes from specific MNFI Element Occurrence Records (EOR) in the FMFM IFMAP Biodiversity Data Layer.

Community Name	State Rank	Global Rank	Quality Rank A,B,C,D
Northern Fen	S3	G3G5	BC

2. **Other information if known.**

- ☒ **Ecological Systems** .Check Applicable Regional Landscape Ecosystem (Section), Subsection, and Sub-subsection from Albert, Dennis A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification. Gen. Tech. Rep. NC-178. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 250 pp

Name	Section Number	Subsection Number	Sub-subsection Number
Section VII. Northern Lacustrine-Influenced Lower Michigan	7		
Subsection VII.2. Highplains	7	2	

3. **Ecological Systems**

- ☒ **List name(s) of Ecosystems/Natural Communities (based on MNFI Community Classification):**

NORTHERN FEN

Overview: Northern fen is a sedge- and rush-dominated wetland occurring on neutral to moderately alkaline saturated peat and/or marl influenced by groundwater rich in calcium and magnesium carbonates. The community occurs north of the climatic tension zone and is found primarily where calcareous bedrock underlies a thin mantle of glacial drift on flat areas or shallow depressions of glacial outwash and glacial lake plains and also in kettle depressions on pitted outwash and moraines (Kost et al. 2007).



Northern Fen Map of Statewide Distribution (Cohen & Kost, 2008)



Roots Lake Northern Fen Photos by Joshua G. Cohen, Ecologist Michigan Natural Features Inventory

Summary Site Description Excerpted from Cohen et. al. 2008.

Root Lake

Natural Community Type: Northern Fen

Rank: G3G5 S3, vulnerable to secure globally and vulnerable within the state

Element Occurrence Rank: BC

Location: Traverse City Forest Management Unit, Compartment 40

Element Occurrence Identification Number: 9558

Site Description: This site constitutes two blocks of northern fen that occur in large, flat wetlands formed by kettle depressions within pitted outwash. The soils are alkaline (pH 8.0) marl of variable depth (30 cm - > 100 cm) overlying wet alkaline to circumneutral sands. The depth of the marl increases from the upland edge to the center of the wetlands as depth to the water table decreases. Calcium precipitation has resulted in extensive marl flats and groundwater influence contributes to the alkaline conditions. Fluctuation of water levels results in complex patterning of ecological zones and dynamic shifting of these zones. Three primary vegetative zones characterize the site: a floating sedge peat mat, submergent marsh, and marl flats. Floating mat, which is extensive in the eastern kettle depression, is dominated by twig-rush (*Cladium mariscoides*) with wiregrass sedge (*Carex lasiocarpa*) and hardstem bulrush (*Schoenoplectus acutus*). Submergent marsh is prevalent in the western depression, which has a higher portion of open water. Prevalent vegetation in the submergent marsh zone includes sweet-scented water-lily (*Nymphaea odorata*), stoneworts (*Chara* spp.), and pondweeds (*Potamogeton* spp.). The marl flats are dominated by silverweed (*Potentilla anserina*), sedge (*Carex viridula*), Kalm's St. John's-wort (*Hypericum kalmianum*), and goldenrods (*Solidago* spp.). The low shrub layer, which is patchy and limited to drier marl flats, is dominated by Kalm's St. John's-wort with some patches of shrubby cinquefoil (*Potentilla fruticosa*). Bluejoint grass (*Calamagrostis canadensis*) is prevalent in areas of northern wet meadow.

- ☒ **Ecological processes** – such as connectivity, hydrology, fire, wind events, flooding, pest and disease cycles;
Describe:

Hydrology, Fire, Flooding, Windthrow, Disease and Insects (Excerpt below from Kost et al, 2007)

Saturated and inundated conditions inhibit organic matter decomposition and allow for the accumulation of peat. Development and expansion of fens occur via two different processes in glacial lakeplain and outwash versus kettle depressions. Fens develop in glacial lakeplain and outwash where groundwater influence maintains the saturated conditions that inhibit organic matter decomposition and allows for peat accumulation. Peat develops vertically and spreads horizontally. Lake-filling occurs in small kettle lakes with minimal wave action where gradual peat accumulation results in the development of a sedge mat that can fill the basin or occur as a floating mat within the lake or as a grounded mat along the water's edge. Floating mats of fen sedges such as wiregrass sedge (*Carex lasiocarpa*) are able to pioneer open water and emergent marsh. The interlacing of rhizomes and roots forms a floating mat that is buoyed by water and accumulates organic matter in the form of sapric peat. Over time, fen mats are often invaded by ericaceous shrubs and acidifying sphagnum mosses. The invasion of sphagnum mosses into fen systems often results in the conversion of fens to more acidic communities such as poor fen or bog.

Natural disturbance factors influencing northern fens include constant saturation by cold, calcareous groundwater, fire, flooding, windthrow, and outbreaks of tree parasites and insects. Open conditions within fens are maintained primarily by hydrologic and chemical conditions that limit the establishment and growth of woody plants. Surface fires can contribute to the maintenance of fens by killing encroaching trees and shrubs without removing the peat, which is normally saturated. In the absence of fire, a thick layer of leaf litter can develop, which stifles seed bank expression and seedling establishment. Fire severity and frequency in fens is closely related to fluctuations in water level and landscape context; fens bordering fire-prone pine and oak-pine systems likely experienced occasional fires, whereas those embedded within rich conifer swamps or mesic northern forests burned very infrequently. Prolonged periods of lowered water table can allow the surface peat to dry out sufficiently to burn. Such peat fires can result in the conversion of peatland to mineral soil wetland. Lowering of the water table of fens results in the increase in decomposition rates of organic matter and the subsequent accumulation of compact peat that is more conducive to shrub and tree growth. In such a circumstance, northern fen can succeed to rich conifer swamp or northern shrub thicket. Flooding, often caused by beaver activity, can contribute to the maintenance of fens or result in the conversion of fens to bogs. Roots of trees in peatlands are physiologically active near the surface and are killed during prolonged flooding. Trees growing in fens are particularly susceptible to windthrow because peat provides a poor substrate for anchoring trees. Tree survival in fens is also limited by insects and parasites. Insect outbreaks of the larch sawfly (*Pristiphora erichsonii*) and larch casebearer (*Coleophora laricella*) cause heavy mortality of tamarack (*Larix laricina*), while the plant parasite dwarf

Root Lake Preliminary Draft ERA Management Plan - November 21, 2008

mistletoe (*Arceuthobium pusillum*) kills black spruce (*Picea mariana*).

- ☐ Underlying environmental features – such as soils, geology, topography, headwaters;

Describe:

- ☐ Environmental gradients – such as elevation, precipitation, temperature;

Describe:

- ☐ Species and/or community structure – using during migration, during different life stages, or gradual species turnover across environmental gradients.

Describe:

- ☐ Nested large and small natural communities linked by functional or restorable ecosystems:

Describe:

- ☒ High quality natural communities nearby:

Describe:

Dry mesic northern forest candidate Ecological Reference Area to south in Sand Lakes Quiet Area, Sand Lakes Northern Fen Ecological Reference Areas to the south

- ☐ Large Block Size:

General Shape and Acres:

4. **Species Assemblages** – List types of species assemblage targets.

- ☐ Major groupings of species - share common natural processes or have similar conservation requirements (e.g., freshwater mussels, forest-interior birds, essential pollinators).

- ☐ Globally significant species aggregations (e.g. migratory shorebird aggregation).

5. **Species** - List types of species by common and scientific name:

- ☐ Focal species - keystone, wide-ranging (regional), providing linkages between ecosystems, and umbrella species.

Species:

- ☐ Globally imperiled or state endangered or threatened native species - Ranked G1, G2, G3 by NatureServe, and S1, S2 by MNFI, state and/or federally listed or proposed for listing as Threatened or Endangered (MI and U.S.), and on the IUCN Red List (International).

Species:

- ☒ Species of Special Concern - Due to vulnerability, declining trends, disjunct distributions, or endemic status; Ranked S3 by MNFI

Species:

- ☐ Other species of greatest conservation need - Identified as part of Michigan's Wildlife Action Plan due to declining populations or other characteristics that may make them vulnerable.

Species:B: KNOWN SOCIAL/ECONOMIC VALUES

- ☒ Archaeological: Check with SHPO
- ☐ Historical:
- ☒ Recreational:
- ☒ Camping : Dispersed camping
- ☐ Canoeing/Kayaking:
- ☒ Fishing: bass, bluegill, sunfish
- ☐ Hiking/Backpacking:
- ☒ Hunting/Trapping: Deer, upland game, waterfowl
- ☐ Photography
- ☒ Scenic
- ☒ Water (lake, river, stream): Root Lakes
- ☐ Wildlife Viewing:
- ☐ Cross Country Skiing
- ☐ Other :
- ☐ Restorative/Spiritual
- ☐ Traditional Use/Gathering

C: EXISTING INFRASTRUCTURE/FACILITIES:

- ☐ American Disability Accessibility (ADA) Considerations
- ☐ Boat Launch(es)
- ☐ Bridge(s):
- ☐ Campground(s):
- ☐ Interpretive Displays:
- ☐ Marked boundaries
- ☐ Parking lot(s):
- ☐ Posted use rules
- ☐ Scenic Overviews
- ☐ Toilet(s)
- ☒ Trails/Boardwalks: Two tracks and forest roads coming off of Sand Land Lakes Road with pull-offs along the Lakes
- ☒ Other: County Road - Sand Lakes Road

SECTION 3: CURRENT CONDITIONS

D. CURRENT STATUS/VIABILITY OF CONSERVATION VALUE/TARGET (FROM TNC CAP TOOL KIT)

STATUS DEFINITIONS – POOR - IMMINENT LOSS, FAIR – VULNERABLE, GOOD – MINIMUM INTEGRITY, VERY GOOD - OPTIMAL INTEGRITY

LIST CONSERVATION VALUE/TARGET FROM SECTION 2 – A, B OR C	LIST CATEGORY OF SIZE, CONDITION, OR LANDSCAPE CONTEXT	LIST KEY ATTRIBUTE	LIST INDICATOR	LIST CURRENT STATUS POOR, FAIR, GOOD, OR VERY GOOD
NORTHERN FEN	CONDITION LANDSCAPE CONTEXT	NATURAL PROCESSES FIRE AND HYDROLOGY	FIRE PLANNING IN PLACE LACK OF ATV RUTTING WITHIN FENS FORESTED BUFFERS AROUND FENS	GOOD - FAIR
RECREATIONAL	LANDSCAPE CONTEXT SCENIC PROPERTIES OF ROOT LAKES	DISPERSED CAMPING ADJACENT TO LAKE	SCENIC AND ECOLOGICAL INTEGRITY OF THE SHORELINE MONITOR IMPACTS FROM DISPERSED CAMPING	FAIR?

E. : INITIAL PRIMARY THREATS ASSESSMENT TO ESTABLISH BASELINE CONDITION

CHECK ALL THAT THERE IS ACTUAL EVIDENCE FOR AND DESCRIBE THE EVIDENCE BRIEFLY AND/OR ATTACH PHOTOS

DO THIS INITIALLY FROM AERIAL PHOTOS, LOCAL KNOWLEDGE, AND EXISTING DATA FOLLOWED BY A SITE VISIT.

A. Habitat Conversion & Degradation – Complete or substantial loss of or damage to natural habitats.

- ☒ Altered Fire Regime -suppression or increase in fire frequency and/or intensity outside of its natural range of variation:
- ☐ Altered Hydrologic Regime Changing water flow patterns outside their natural range of variation (surface water diversion, groundwater pumping, dam operations)
- ☐ Commercial & Industrial Development: factories, stand-alone shopping centers, office parks, train yards, docks, ship yards, airports, landfills)
- ☐ Farms & Plantations Agricultural operations - commercial farms, industrial plantations, feed lots, aquaculture
- ☐ Housing & Urban Development Expansion of cities, towns, settlements, non-housing development - urban areas, suburbs, villages, homes, shopping areas, offices, schools, hospitals
- ☐ Military Activities Actions by formal or paramilitary forces (military bases, defoliation, munitions testing :
- ☐ Natural System Modifications Actions that convert or degrade habitat to “managing” natural systems for human welfare - dam construction, land reclamation, wetland filling, rip-rap along shoreline, levees and dikes
- ☐ Recreation Areas Recreation sites with a substantial footprint ski areas, golf courses, resorts, county parks
- ☐ Other:

B. Transportation Infrastructure – Long narrow corridors altering, fragmenting, and disturbing natural habitat and species, including soil erosion/sedimentation, and providing routes for invasive or problematic species.

- ☐ Flight Paths :
- ☐ Railroads:
- ☒ Roads and Trails: Density and proximity of forest roads causing impacts to upland and waters edge.
- ☐ Shipping Lanes:
- ☐ Trails:
- ☐ Utility Lines.
- ☐ Stream Crossings - culverts, bridges :
- ☐ Other:

C. Energy & Mining – Production of non-biological resources having negative impacts to conservation values.

- ☒ Mining – Exploring, developing, and producing. . Check to see if DNR owns minerals.
- ☐ Oil & Gas Drilling
- ☐ Renewable Energy – Exploring, developing, and producing.

D. Biological Resource Harvesting –Over or under consumption of “wild” resources resulting in loss of conservation values.

- ☐ Gathering – Harvesting plants, fungi, and other non-timber/non-animal products for commercial, recreation, or subsistence purposes.
- ☐ Grazing
- ☐ Hunting, Trapping & Fishing
- ☐ Timber Harvesting:

E. : INITIAL PRIMARY THREATS ASSESSMENT TO ESTABLISH BASELINE CONDITION**CHECK ALL THAT THERE IS ACTUAL EVIDENCE FOR AND DESCRIBE THE EVIDENCE BRIEFLY AND/OR ATTACH PHOTOS****DO THIS INITIALLY FROM AERIAL PHOTOS, LOCAL KNOWLEDGE, AND EXISTING DATA FOLLOWED BY A SITE VISIT.**

- E. Recreation & Research** – Non-consumptive uses of biological resources **resulting in damage** to natural resources.
- ☐ Human-Powered Recreation – *mountain bikes, hikers, backpackers, cross-country skiers, rock climbers, canoeists, kayakers, hang-gliders, birdwatchers, photographers*
- ☒ Motor-Powered Recreation - *Traveling outside of established transport corridors: off-road vehicles, motorcycles, motorboats, jet-skis, snowmobiles, ultra-light planes. Illegal ORV use in and around wetland complex causing rutting and impacting local hydrology.*
- ☐ Scientific Research – *Ecosystem manipulations*
-
- F. Pollution** – Introduction of exotic and/or excess materials from point and non-point sources with **evidence of resource damage.**
- ☐ Chemicals & Toxins
- ☐ Greenhouse Gasses – *CO₂, methane*
- ☐ Light Pollution
- ☐ Noise Pollution
- ☐ Nutrient Loads
- ☐ Radioactive Materials
- ☐ Salt/Brine
- ☐ Solid Waste – *garbage, litter*
- ☐ Thermal Pollution
- ☐ Waste & Residual Materials – *dredge spoil, water treatment residuals, slash, mine tailings, excess sediment loads.*
-
- G. Invasive & Other Problematic Species & Genes** – Aquatic or terrestrial non-native and native species or genetic materials that have or are predicted to have harmful effects on biodiversity following their introduction, spread and/or increase in abundance.
- List species, extent of infestation and fill out Forest Health Form.
- ☐ Introduced Genetic Material
- ☒ Invasive Species: **Knapp weed along paths**
- ☐ Problematic Native Species:
- ☐ Hybrid Species
-
- H. Climate Change** – Evidence of impacts from long-term changes linked to global warming and other climate issues.
- ☐ Climate Variability – Intensification and/or alteration of normal weather patterns - *droughts, high wind or rain event.*
- ☐ Habitat Shifting & Alteration
-
- I. Other**
-

SECTION 4: RECOMMENDED MANAGEMENT GOALS AND ACTIVITIES**LIST GOAL(S), FOR EACH VALUE, RELATED THREAT ABATEMENT, MAINTENANCE OR ENHANCEMENT NEED IDENTIFIED IN SECTIONS 2 AND 3****CHECK ALL GOAL CATEGORIES THAT APPLY**

- ☒ **NATURAL COMMUNITY MAINTENANCE OR ENHANCEMENT GOALS**
- ☒ **ECOLOGICAL SYSTEMS MAINTENANCE OR ENHANCEMENT GOALS**
- ☒ **SPECIES MAINTENANCE OR ENHANCEMENT GOALS**
- ☐ **SPECIES RESTORATION GOALS**
- ☐ **SOCIAL ECONOMIC GOALS**
- ☐ **INFRASTRUCTURE/FACILITIES GOALS**
- ☒ **ADMINISTRATIVE GOALS– PROTECTION STATUS; CAPACITY BUILDING; FUNDING, VOLUNTEERS**

GOALS AND DESCRIPTION DERIVED FROM SECTIONS 2 AND 3 (REPEATED ON SUMMARY PAGE)

- Goal 1: Maintain Northern Fen community through allowing natural processes to occur within fen and adjacent upland buffers**
- Objective 1:** Develop wildfire response plan to allow fire to burn where feasible, use Minimum Impact Suppression Techniques (MIST).
- Objective 2:** Work with Specialists and volunteers to develop a control plan for invasive species.
- Objective 3:** Control illegal ATV use and restore damage to wetland where identified.
- Objective 4:** Develop an access plan to minimize impacts to the shoreline and the fen.
- Objective 5:** Maintain forested buffers.
-
- Goal 2: Review the Root Lake Fen within the Biodiversity Planning Process as it nests within a larger landscape complex (Sand Lakes Northern Mesic Forest Landscape Unit) and as it relates to the two ERA's to the south identified in the Sand Lakes Quiet Area.**
-